

Algebra 1

Chapter 11 Review

Rational expressions and equations

What is the product?

$$\frac{3x+4}{3x-9} \cdot \frac{(x^2+5x-24)}{1}$$

$$\frac{3x+4}{3(x-3)} \cdot \frac{(x-3)(x+8)}{1}$$

State excluded values
 $x \neq 3$

$$\frac{(3x+4)(x+8)}{3}$$

The length of a rectangle is $x - 2$. Its area is $2x - 4$. What is the simplified expression for the width?

$$A = l \cdot w$$

$$\frac{2x-4}{(x-2)} = \frac{(x-2)w}{(x-2)}$$

$$w = \frac{2(x-2)}{x-2} \quad w = 2$$

What is the quotient?

$$\frac{1}{q+4} \div \frac{2q^2}{2q+8}$$

$$\frac{1}{q+4} \div \frac{2q^2}{2q+8} = \frac{1}{q+4} \cdot \frac{2(q+4)}{2q^2}$$

$$\frac{1}{q}$$

Simplify. State the excluded values.

$$\frac{x^2 - 9}{-x^2 + 2x + 3}$$

$$\frac{(x-3)(x+3)}{-1(x^2 - 2x - 3)} = \frac{\cancel{(x-3)}(\cancel{x+3})}{-1(\cancel{x-3})(x+1)}$$

$$\frac{(x+3)}{-1(x+1)}$$

Your friend runs for $(x^2 - 225)$ seconds at a ^{multiply} rate of $\frac{1}{2x - 30}$ meters per second. How far does your friend run?

$$(x^2 - 225) \cdot \frac{1}{2x - 30}$$

$$\frac{(x-15)(x+15)}{1} \cdot \frac{1}{2(x-15)}$$

$$\boxed{\frac{x+15}{2} \text{ m}}$$

What is the solution of each equation? Check your solution.

$$10x \left(\frac{2}{5x} - \frac{1}{2x} = -\frac{1}{2} \right)$$

$$\frac{20x}{5x} - \frac{10x}{2x} = -\frac{10x}{2}$$

$$4 - 5 = -5x$$

$$\frac{-1}{-5} = \frac{-5x}{-5} \quad x = \frac{1}{5} \checkmark$$

What is the solution?

$$\frac{x-3}{x+1} \cdot \frac{1}{x+1} = \frac{1(x+1)}{x+1} = \frac{(x-3)(x+1)}{x+1}$$

$$1 = x-3$$

$$x = 4 \checkmark$$

You can make one batch of cookie dough in an hour and your brother can make a batch in 42 minutes. How much time does it take you to make a batch of cookie dough together?

$$2520\left(\frac{x}{60} + \frac{x}{42} = 1\right)$$

$$\frac{2520x}{60} + \frac{2520x}{42} = 2520$$

$$42x + 60x = 2520$$

$$102x = 2520$$

$$x = 24.7 \text{ min}$$

Ch 11 Review Homework:

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Quiz MONDAY